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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Keun-Ho Shin

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7590

07/01/2004

ROBERT E. BUSHNELL

1522 K STREET NW

SUITE 300

WASHINGTON, DC 20005-1202

EXAMINER

PAYNE, DAVID C

ART UNIT

PAPER NUMBER

2633

16

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/484,057

Applicant(s)

SHIN, KEUN-HO

Examiner

David C. Payne

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7 and 9-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 30-34, 41 and 42 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 11, 13-17, 21 and 35-40 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 12, 18-20, 22-29 and 43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5,7, 11, 13-17, 21, and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. US 5,481,183 (Johnson) in view of Faris US 5,347,525 (Faris).

Re claims 1, 2, 3 and 17

Johnson disclosed an input unit comprising a lensed fiber (Figure 1, col./line: 3/1-25) receiving an optical signal via an optical transmission medium and producing a collimated beam of optical signals, said input unit further comprising a concave lens (10) receiving said collimated beam and outputting a plurality of optical signals that have a contiguous range of incidence angles according to the wavelengths each of said plurality of optical signals; and a filter for receiving said plurality of optical signals from the input unit (etalon) Johnson does not disclose a WDM but an optical carrier that is modulated by an RF signal producing a carrier frequency and several side bands of which the wavelength separation is a fraction of a

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nanometer.

Faris disclosed a method of monitoring a WDM signal with detectors that has been separated with an etalon (figure 4A, e.g., col./line: 6/5-10, 7/20-30).

However, it would have been obvious to one of ordinary skill in the art at the time of invention to use the Faris e/o modulators along with the WDM source in place of the RF modulator and single carrier in Johnson for the benefit of generating carrier frequencies sufficient for high bandwidth application as disclosed by Faris (see col./line: 1/10-20).

Re claim 4,

Johnson does not disclose converting the signal from the detector array into electrical signals. However it would have been obvious to one of ordinary skill in the art to claim as such. One is motivated as such since Johnson disclosed a video camera (col./line: 4/5-15) that is used as a spectrum analyzer. Video cameras are known to produce electrical signals particularly if needed to drive electronics for a spectrum analyzer.

Re claims 5, 13, 14

Johnson disclosed a pixel array (16) is placed to permit illumination of the array by the portion of light transmitted through the etalon (e.g., col./line: 4/5-15) at a continuous range of incidence angles (.36 to -.36 degrees, col./line: 3/25-27). Both the video camera (17) and monitor (19) as shown in Figure 1 are widely known to include microprocessors.

Re claims 7, 15 and 21, Johnson does not disclose an amplifier as claimed. Faris disclosed

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amplifiers following the demux (62 or etalon as indicated above) in an optical system. It would have been obvious to one of ordinary skill add the amplifiers of Faris to the Johnson system to obtain the claimed invention. One is motivated as such since a loss of signal commonly occurs after filtering which necessitates the use of amplifiers to strengthen the signal downstream.

Re claims 11 and 16, Johnson disclosed a Fabry-Perot etalon filter (Figures 1 and 9 #13).

Re claim 35, the modified invention of Johnson and Farris taught passing a plurality of different wavelengths in said WDM optical signal (see Johnson, col./line: 2/24-27, 31-33).

Re claims 36, 39, the modified invention of Johnson and Farris taught where said array of detectors receives optical signals from more than one wavelength (see Johnson, col./line: 2/24-27, 31-33).

Re claims 37, 38, 40 and 41 the modified invention of Johnson and Farris taught that the etalon actually performs the separation of wavelengths not a prior element (see Johnson, col./line: 2/24-27, 31-33) and also lacks a demultiplexer or demultiplexing step prior to impinging on the etalon. Furthermore, given that the applicant describes the his etalon as separating and demultiplexing signals, Johnson that contains the same structure can be regarded to function likewise regardless if the step is called separating or demultiplexing, see

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arguments section below.

*Allowable Subject Matter*

3. Claims 9,10,12,18-20,22-29 and 43 as objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 30-34, 41 and 42 allowed.

*Response to Arguments*

5. Applicant's arguments, see p. 16 paragraph 8 filed 16 April 2004 with respect to claims 9,10,12,18-20,22-34 and 41-43 have been fully considered and are persuasive. The rejection of the respective claims has been withdrawn.
6. First, the Examiner notes that at a minimum claim 40 appears to conflict with the specification. The Examiner understands that the applicant has not claimed a demultiplexer per se. However, the applicant's invention is drawn to the idea of separating wavelengths (see specification p. 4 line 6, "... and separating the WDM optical signal into optical signals having different wavelengths ..."). This is understood as demultiplexing to those who are

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skilled in the art. Likewise, one could argue that the etalon which performs this function is in itself a demultiplexer.

7. Furthermore, upon further consideration, it appears that Johnson does teach separating and passing multiple wavelengths similar to the applicant's invention. This is contrary to the conclusion that the Examiner reached during the interview with Matthew Lestina on 15 August 2003 which stated that only a single wavelength was passed by the etalon. A careful reading of Johnson US 5,481,183 col./line: 2/24-27, "In a preferred embodiment an etalon is used to **spatially separate the frequencies** in the modulated beam. The etalon act as a resonant cavity and passes light of a specific frequency only to the extend that the light enter (and lease the etalon as t specified angle." And again, col./line: 2/30-33, "The light passing through the etalon is detected by a video camera (with **different frequencies** being detected at different pixel locations) and the **different frequencies** are displayed **simultaneously** on a monitor."

This disclosure is illustrates the error in the applicant's statements in the amendment paper filed 16 April 2004 that states, p. 12 paragraph 2 "Johnson '183 does not pertain to multiplexing or demultiplexing of optical signals and Johnson '183 does not pertain to WDM of optical signals."

The applicant is corrected that a single carrier frequency is used but incorrect that Johnson does not demutiplex signals. Also, it appears one hand that the applicant desires to show a deficiency of Johnson as not performing demultiplexing yet claims the negative limitation in

his own invention by the “said method being absent a demultiplexing step” as in claim 40.

The aforementioned passage in Johnson also illustrates a similar case where the applicant is correct in that Johnson passes only one channel through the etalon ...” found on amendment paper filed 16 April 2004, p. 13 paragraph 1. However applicant’s claims are drawn to the separation of wavelengths and a plurality of wavelengths impinging on a detector (not channels.) This is an important point in that channels are usually understood in the art at information bearing wavelengths. However, both the applicant’s invention and the prior art discuss separation of **wavelengths** and monitoring of **wavelengths** not channels.

Nonetheless, even if the applicant claimed channels it is believed this modification of the prior art would still be patentably obvious in view of Johnson.

Furthermore, the applicant’s argument on p. 14, “Applicant further submits that the concept of analyzing all of the carrier frequencies of a multiplexed optical signal at once using a single etalon is novel and in not present in the prior art” can be addressed with the same aforementioned passage of Johnson. Johnson stated that the different frequencies (or wavelengths) are displayed simultaneously on a monitor. This clearly connotes analyzing multiple wavelengths at once.

Finally Farris ‘525 was used to teach the art of amplification between demultiplexing and monitoring but not necessarily demultiplexing. That is, Johnson has been shown to teach separating wavelengths and does not rely on this aspect of Johnson. Subsequently, the



combination of Johnson and Farris does not teach away from the applicant's claimed invention.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (703) 306-0004. The examiner can normally be reached on M-F, 7a-4p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dcp

  
LESLIE PASCAL  
PRIMARY EXAMINER